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Mexico's National Command and Control Center Challenges and Successes

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14. ABSTRACT
Secretar?de Seguridad P?blica (The Secretariat of Public Security or SSP) has a work force of nearly 30,800 police personnel and is one of the largest agencies in Mexico and Latin Americas. SSP is uniquely responsible for maintaining law and order and responding to civilian emergencies throughout Mexico. SSP has recently built a National Control Center (NCC) in Mexico City to plan for, respond to and recover from regional and national disasters. This modern underground center, often referred to in this paper as the Bunker, collocates with Mexican Army and Navy. Some of the design and deployment of technologies were funded by the Merida Initiative providing United States aid to Mexico. The Bunker project empowers the SSP and other key agencies with standardized core competencies in incident management processes, protocols, and operational capabilities. Its mission is to improve public safety by more effective monitoring, assessing, responding, and recovering from national emergencies and disasters. This paper introduces the Bunker project and its architecture. It discusses the major challenges that this project faced, and how it overcame those challenges to become one of the premier command-and-control facilities in the world.

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Abstract

Secretaría de Seguridad Pública (The Secretariat of Public Security or SSP) has a work force of nearly 30,800 police personnel and is one of the largest agencies in Mexico and Latin Americas. SSP is uniquely responsible for maintaining law and order and responding to civilian emergencies throughout Mexico.

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The Bunker project empowers the SSP and other key agencies with standardized core competencies in incident management processes, protocols, and operational capabilities. Its mission is to improve public safety by more effective monitoring, assessing, responding, and recovering from national emergencies and disasters.

This paper introduces the Bunker project and its architecture. It discusses the major challenges that this project faced, and how it overcame those challenges to become one of the premier command-and-control facilities in the world.

Table of Contents

Mexico's National Command and Control Center Challenges and Successes

1. Introduction

This paper introduces the National Command Center (Bunker) as Mexico's premier emergency facility for the coordinated response and resolution of national incidents, including natural and man-made disasters, and with the expressed purpose of ensuring continuity of police with emergency responders. The authors are stakeholders and designers, including both Mexico and USG project leaders along with design consultants, under the direction of Secretaría de Seguridad Pública (SSP) and Narcotic Affairs Section (NAS) for all system requirements and design. While not fully complete, the National Command Center has already strengthened the protective posture to disseminate timely and accurate actionable information between Mexico and neighboring countries' respective federal, state, local, and private partners. When fully complete, the National Command Center will ensure that the Mexican Government has the needed tools to be able to effectively respond to national emergencies, and expeditiously thwart and confront criminal or terrorist activity that affects both sides of the border.

2. Background

Mexico, with a population of 111 million, is the 11th most populous country in the world. It covers a total land area of about 760,000 square miles which makes Mexico 14th largest independent country in the world. Mexico comprises of 31 states and the Federal District – Mexico City, which is the Capital of Mexico. Mexico shares nearly 2,000-mile common border with United States in the North. It shares the Southern border with Belize and Guatemala.

The United States government provides assistance to Mexico to develop its law enforcement and public security capabilities. This assistance program is managed by the Embassy's Narcotics Affairs Section (NAS), which administers resources provided through the State Department's Bureau for International Narcotics and Law Enforcement (INL). INL has a worldwide responsibility to implement federal policies related to the interdiction and eradication of Narco-trafficking; prosecuting counterterrorism, and promoting public security in host nations.

The NAS is the office within the U.S. Embassy to Mexico that manages assistance activities funded through the State Department's Bureau for International Narcotics and Law Enforcement Affairs. In the Mexican context, NAS manages a bilateral assistance program that helps design, build and otherwise nurture the capabilities of Mexico's law enforcement agencies (LEAs), by investing in the professionalization of their personnel, the creation of infrastructure and the provision of other needed goods and services. NAS also works through the Embassy's Law Enforcement Committee to coordinate policies across the many U.S. law enforcement agencies represented at post. NAS also complements the efforts of United States Government (USG) in institution building and capacity enhancements of

Mexican law enforcement agencies. The NAS funding has enabled major Mexican Law Enforcement agency such as Secretaria Seguridad de Publica (SSP) to adopt "state-of-the-art" and industry "best-practices" in command and control to foster culture of lawfulness compliance with laws of the land.

3.   Law Enforcement and Incident Response

Secretaría de Seguridad Pública (The Secretariat of Public Security) or SSP, with a work force of 30,800 preventive police personnel, is one of the largest agency in Mexico and Latin Americas which is responsible for maintaining law and order and responding to civilian emergencies. The main functions of SSP are to maintain public peace during major events and incidents, prevent crimes, protect rights of individuals, assist the Attorney General, manage the federal prison system and establish criminal policy. SSP achieves its objectives with the help of its main wing, Cuerpo Federal de Policia (CFP). CFP is present in all of Mexico's 31 states and the federal district in Mexico City. In the near future, SSP plans to expand CFP to 500 offices nationwide so that local law enforcement and CFP can coordinate and work together to fight the criminal organizations and respond to incidents of regional importance. According to SSP, approximately 90% of the incidents are local and handled by local response agencies. It is the remaining 10% of the time that a national command center plays a critical role.

In November of 2009, President Felipe Calderón inaugurated SSP's National Command and Control Center (Bunker) adjacent to its new headquarter complex in Mexico City. The control center's main objective is to support SSP's major functions of maintaining law and order, intelligence gathering and responding to large-scale civilian emergencies in Mexico including Mexico City.

4.   Project objectives

The SSP's national command center project is a complex project with hundreds of requirements from planning for an incident to responding and recovery functions. Since the national command center is first of its kind in Mexico, it requires assistance with all components of a National Incident Management System (NIMS), namely, planning for, protection against, responding to and recovering from natural and technological (such as IEDs and terrorist attacks) regional and catastrophic disasters.

SSP has built a National Command Center adjacent to its new headquarter complex in Mexico City to support its main functions. The command center will empower SSP to collect intelligent information about major incidents from many of its departments (i.e. CFP) and manage them from initial prevention, response, and resumption of normal conditions after the incident. Some of the main functions of the proposed command center are the following:

- Command and control (the system for collecting intelligence information, managing resources and taking critical decisions – before, during and after major incidents).
- Common situational awareness/Effective common assessments including intelligent information sharing and storage with Coordinación de Seguridad Regional, Secretaria de Gobernación, Cuerpo Federal de Policia (CFP Federal Preventive Police), Coordinación de Fuerzas de Reacción y ApoyoInmediato and other important organizations both within and outside SSP.

- Support day to day and special CFP operations and activities during major regional and large scales incidents throughout 31 states.
- Provide coordinated response to civil emergencies on a regional and national basis
- Enhance civil protection
- Enhance real time information sharing among stakeholder agencies.

The general objectives of this project are to empower SSP with standardized core competencies (similar to DHS, DOJ and FEMA agencies in US) in incident management processes, protocols, law and order enforcement procedures, intelligence gathering and other business intelligence functions. Designing and implementing these standardized processes and functions will enable SSP to have a common focus and response during emergencies of national consequence – whether terrorism or natural disaster. In addition, it enhances Mexico's preparedness and readiness in responding to all-hazard incidents across all affected geographic areas with coordination from all levels of government when needed. The response will be swift and effective since all of SSP national emergency teams will be using consistent procedures, common incident language, standardized communication protocols and have the same understanding of the situation (common situational awareness) and the operating picture at the national command center.

Currently NAS seeks to define the best means to enhance the capability of the Mexican federal entities dedicated to public security and civil preparedness to manage complex law enforcement operations as well as civil disaster mitigation efforts in a coordinated and effective fashion across multiple jurisdictions and agencies. This project will support the efforts of the Mexican Government (specifically, the federal Public Security Secretariat - SSP) by bringing industry best practices and systems to manage regional and large-scale natural and manmade disasters. The command and control systems that are and yet to be implemented as part of this project are capable of merging both law enforcement operations and civil disaster emergencies. The Bunker will help detect, deter, prevent and mitigate criminal activity in Mexico, to the mutual advantage of both the United States and Mexico; it should also strengthen Mexico's capability to disseminate timely, accurate and actionable information to decision-makers and the public, as well as provide a means to determine and launch appropriate remedial measures during civil emergencies.

5.   Major Stakeholders

The Bunker effectively manages both natural and man-made disasters of national scope, especially those that require both law enforcement and civilian emergencies. For this reason, there is multitude of stakeholders from various government agencies. The following are the key project stakeholders who will play active role in planning, coordinating and responding to regional and national disasters depending on type of incident.

- Secretaria Seguridad de Publica (SSP) orSecretary of Public Security – Lead Agency, responsable forlawenforcment and druingmajordisasters and civilianemergencies.
- Policia Federal (PF) – Federal PreventivePolice

- Centro de InformacionEstrategica en Seguridad (CIES) – Center forStrategicInformation and Security. Responsiblefor Plataforma Mexico, The national IT Platform for law enforcement and intelligence.
- Grupo de Coordinación para la Atención de Instalaciones Estratégicas – GCIE – Coordinationgroupforstrategicfacilitiesmonitoring
- SystemaNacional de Proteccion Civil – National Civil Protection
- Centro de Nacional de Comunicación – Center fornationalcommunication
- Comision Federal de Electricidad (CFE) –Federal Electricity Commission – Manages power for 80 million people. Responds to nationwide incidents and Mexico DF when needed
- Comision Nacional del Agua – National water commission
- Petroleos Mexicanos (PEMEX) - Mexican state-owned petroleum corporation
- Banco de Mexico (BANXICO) – Mexican Federal Bank. SSP provides physical security and armed response
- Secretaría de La Defensa Nacional (SEDENA) -Secretariat of National Defense. Works with SSP for planning and responding to large-scale regional and national disasters and law enforcement situations.
- Secretaria de Marina – (SEMAR) Secretariat of the Navy. Works with SSP for planning and responding to large scale regional and national disasters and law enforcement situations

6.   Project Phases

The Bunker construction is complete along with many of its software and hardware components for Law Enforcement and incident monitoring. The remaining tasks are enhancements to the Bunker's incident management, which include an improved Crisis Information Management System (CIMS). This task is ongoing and follows the proven systems engineering process for a large-scale systems project, such as national command and control centers. Figure 1 below gives the system engineering approach for the control center project, which is implemented in phases. This project has completed Phases I and II. Phase three is expected to start in March 2011 and complete by year's end.

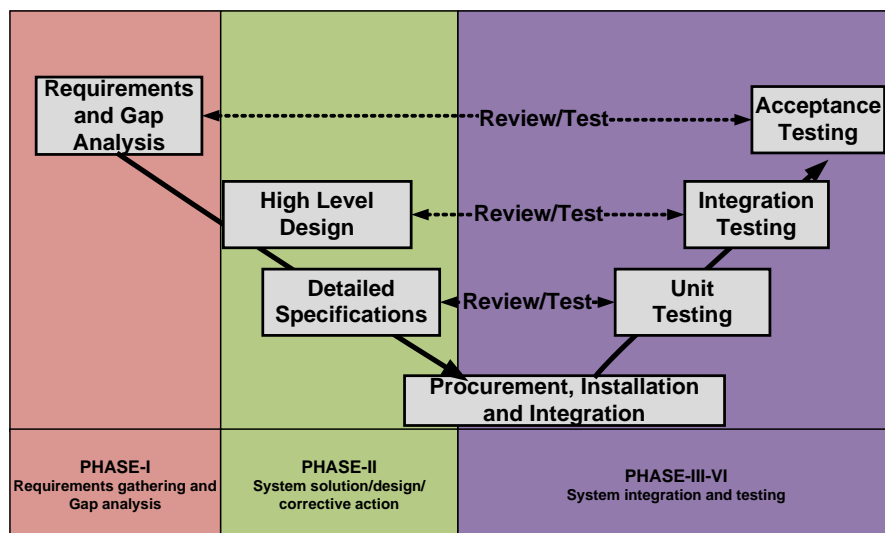Figure 1: System Engineering Approach

7. System Architecture

The major system components are shown in Figure 2 below. Each dark grey block shown below represents a hardware host. Within each host are one or more software packages, and within each package are one or more software components. There are seven hosts and nine software packages.

1. Internet Browser at operator workstations
2. Crisis Information Management System (CIMS)
3. Data Exchange other agencies
4. Video Wall, one video wall at each quadrant
5. SSP Law Enforcement System (Plataforma)
6. Database (proprietary off-the-shelf)
7. Data Files (standard documents)
8. Bunker Archive Management (BAM)
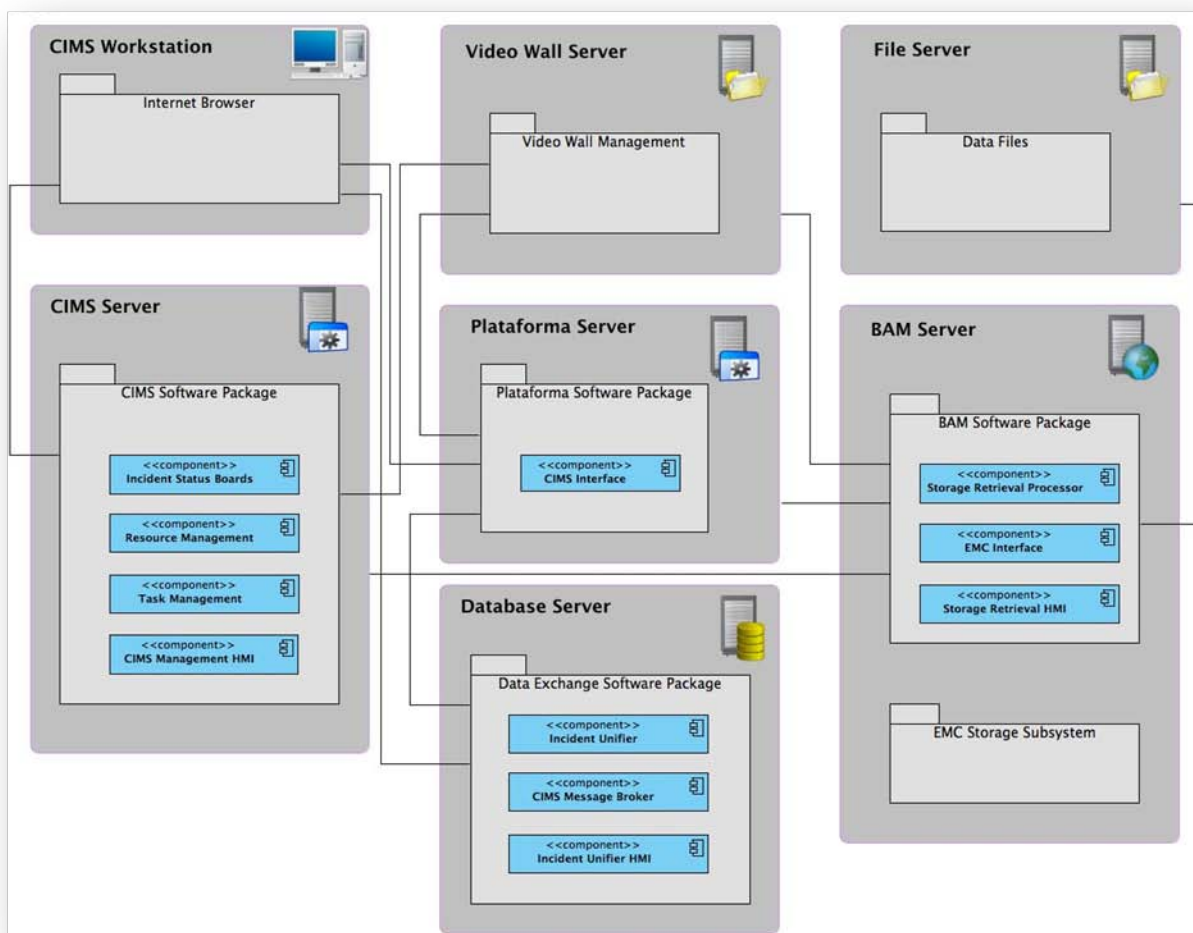9. EMC Storage Interface (proprietary off-the-shelf)

Figure 2: System Architecture

The control center system is a web-based service-oriented framework. About half of the software packages are custom designed, and half are commercial-of-the-shelf (COTS). The two primary web application servers are the Crisis Information Management System and the Plataforma System (SSP's law enforcement). The remaining servers are storage and drivers for the video walls. The network data includes documents, database records, video, and audio.

8.   Control Center's Physical Layout

The control center's distinctive plan view is shown in Figure 3. It is considered unusual because of the isolation through physical partitioning. There are four quadrants partitioned by function, and a center area, known as the command central, which has an unobstructed view of all four quadrants. The glass partition between command central and the quadrants is electronically darkened glass for transparent or opaque viewing. Each quadrant faces away from the center towards a perimeter wall of video projectors.
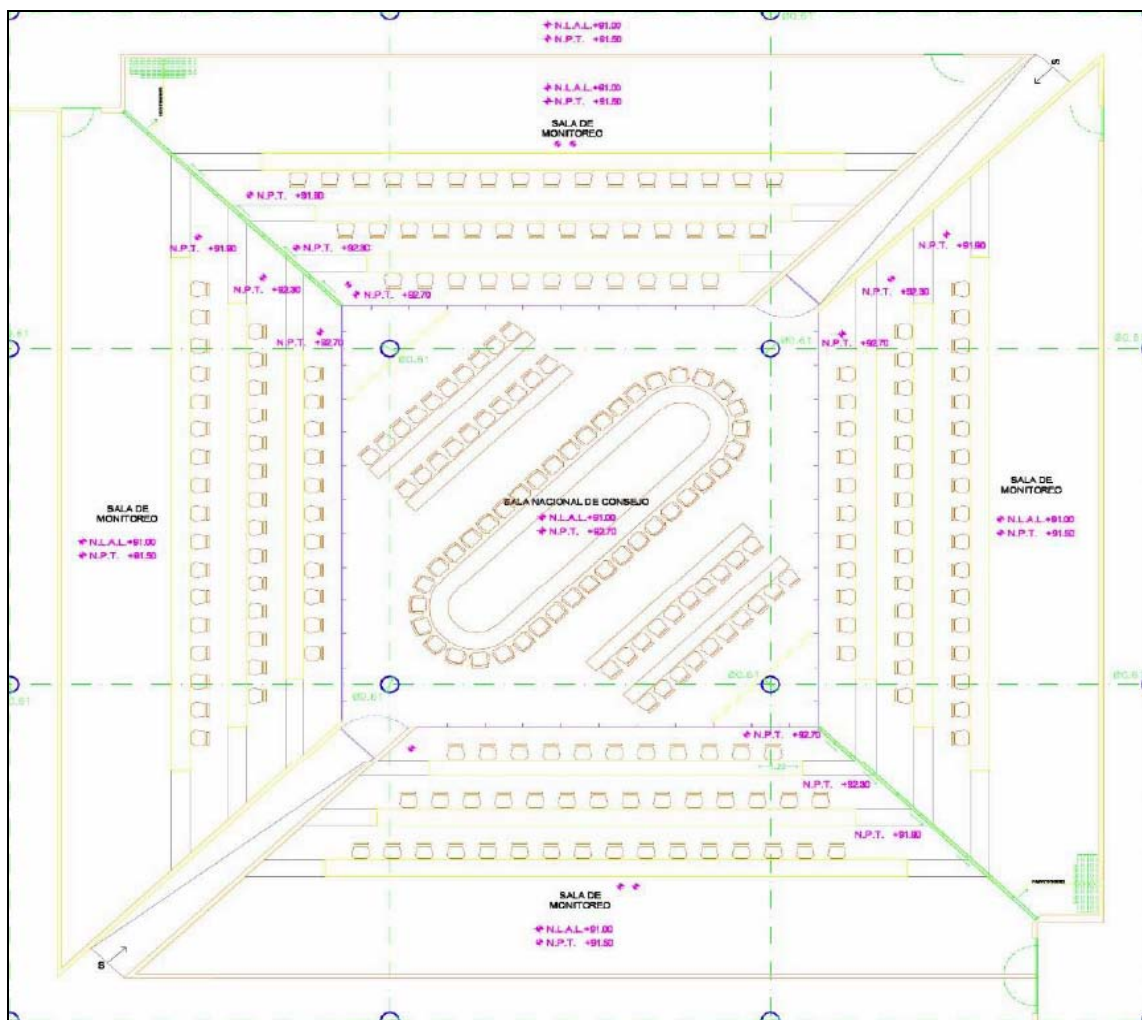

Figure 3: Bunker Plan View

For each quadrant, the video wall consists of twenty 100 inches rear projection panels seamlessly arranged in two rows, 10 panels in each row. The total length of the video wall display area is 20.33 x 3.04 meters (approximately 67 feet by 10 feet). This arrangement is the same for all four quadrants.

Three elevated rows of workstations provide 30 operators with keyboard and three monitors each connected to computer resources in the data center below them. As shown in figure 4, the operators are arranged with full view of the video wall, which contains incident summaries and up-to-date status of response and recovery. Each operator has one or more assignments and each row of operators has one or more role. Typically, the operator in the first row deals with gathering and sorting incident information upon initial notification. Once the incident is verified and sufficient information is collected, the operator hands the incident to a second row operator, who is responsible for analyzing it. This operator is an expert analyst in the type of incident and its potential impact on the surroundings. He devises a response plan and hands the incident to an operator in the third row. Operators in the third row are the supervisors and policy experts. Many are legal experts and can determine if the incident response is legal or needs some judicial oversight.

Figure 4: Bunker Workstations

Quadrant 1 is Special Operations, whose main functions are to maintain public peace during major events and incidents, prevent crimes, protect rights of individuals, assist the Attorney General, manage the federal prison system and establish criminal policy. Special operations include the Federal Police, which coordinates day-to-day and emergency response activities with a variety of local, state and federal agencies. They are organized along military lines and are regarded as the most professional, best-qualified and most dependable law enforcement entity in Mexico.

Quadrant 2 is Strategic Installations, which is the federal level coordination group for strategic installations or critical infrastructure, referred to as Grupo de Coordinacion Instalaciones Estatregicas (GCIE). Their primary mission is to coordinate the security of strategic infrastructure and facilities in the areas of electrical power, water systems, oil, natural gas, and banking. The Bunker's initial communications are to the four agencies within Mexico City, including CFE (power), CONAQUA (water), PEMEX (oil), and Banxico (banking).

Quadrant 3 is Public Security. This is the military arm of the government in charge of national defense. It has responsibility for the land, sea, and air branches of the country's armed forces. Mexico's Secretaría de la Defensa Nacional (SEDENA) has responsibility for the land and air branches of the country's armed

forces, while Secretaria de Marina (SEMAR) has responsibility for territorial sea, maritime land zone, islands, insular shelves, keys, reefs, inner waters, and rivers in their navigable segments.

Quadrant 4 is civil protection. Civil Protection is the federal coordinating agency for disaster preparedness, response and recovery for the Republic of Mexico. They perform many of the same roles as the Federal Emergency Management Agency (FEMA) in the United States. The National Communications Center (CENACOM) is the communications hub for Civil Protection. It monitors the nation's emergencies and conducts preparedness activities for possible incidents. It also conducts research, training, and outreach to reduce significant risks to the general population. Another Civil Protection department is the National Center for Prevention of Disasters (CENAPRED). CENAPRED is responsible for monitoring and alerting for extreme weather, earthquakes, and volcanic eruptions.

9.   The Challenges

The four challenges to the project's objectives and their solutions are given in the following paragraphs. These challenges are the ones that added the most risk to the project and were the most difficult to diagnose and work around. Some of the solutions added significant amount of hardware costs while others dealt more with changing entrenched policies and procedures.

Challenge 1: Creating Common Operational Picture

It is common knowledge within the crisis management community that a Common Operational Picture (COP) is a most desirable goal to coordinate responses during an emergency incident.   COP is important for each phase (monitoring, response, and recovery) of the incident, so that data can be verified and recorded for later analysis, but more important, so that agencies will coordinate human and equipment resources to best help those affected. The Bunker was constructed to protect information from being openly shared between agencies because of security policies. Therefore, the isolated quadrants were constructed along with the problem of COP between quadrants. The goal of achieving COP and protecting sensitive data became a challenge.

Solution 1: Unite the four quadrants

Common lists of incidents, incident maps, and incident reports unite the quadrants. On each of the four video walls is a common area that shares the prioritized incident summaries. The incidents are overlaid on a common map that is managed by a shared geographic information system (GIS). Incident reports have a common reporting format with narrative descriptions on situational status, and with attachments for additional descriptions, real-time digital images, and video feeds. While reports can be easily exchanged between quadrants, its attachments are assigned permissions dependent upon data sensitivity. Operator access is controlled by operator roles and permissions. Quadrant operators use an inter-quadrant messaging system to ask questions and get responses about on-going incidents. Lastly, the Bunker system enforces unique incident identifiers shared by all quadrants so that incident data are captured, indexed, and stored together for later analysis. Figure 5 below depicts the partitioning of the video wall for Civil Protection, showing the center section as the shared map and incident list.
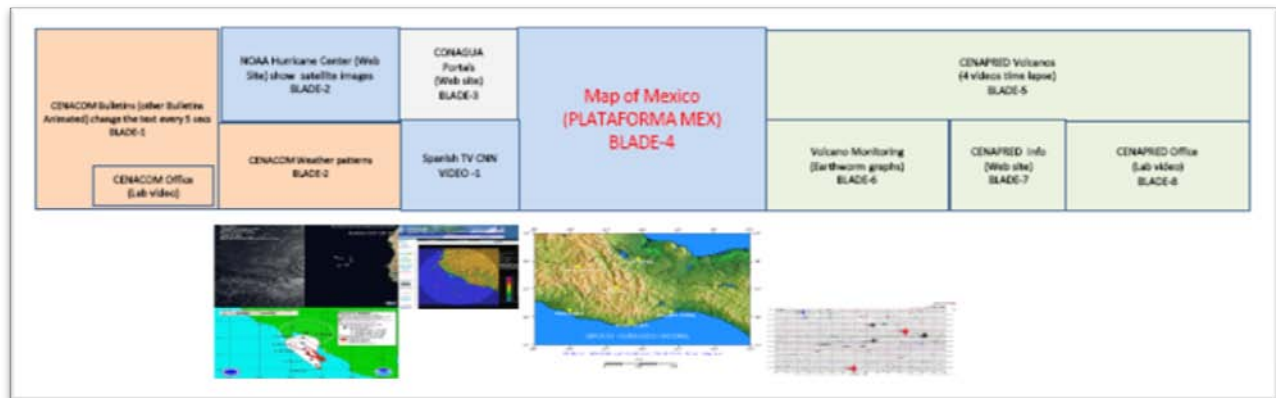
Figure 5: Video Wall Layout

Challenge 2: Secure real-time communications

The SSP Plataforma network needs to be fast and secure because of the argent and sensitive nature of emergency data. The information flows into the Bunker from many sources and incidents can be a force of nature or a man-made crisis. The Bunker receives its information in many formats including textual, encoded data, video, and voice communications on a nation-wide basis. The challenge become evident when existing key agencies, such as Civil Protection, had policies about restricting data access over public telecommunications.

Solution 2: Deploy a private network

The Plataforma network solution is a gigabit private network over fiber. This network securely connects all the key agencies involved in emergency response within Mexico City, so that Mexico City has become the emergency information hub for the nation. Private fiber connects the Center for Strategic Information Security (CIES), which reports to SSP and is responsible for the extension of Plataforma network throughout Mexico. The advanced telecommunications technology and systems information nodes includes all databases related to public safety, with the stated purpose that all the information is accessible to law enforcement authorities across the country for preventing and combating crime. Figure 6 depicts the Plataforma private network within Mexico City and connections from its four quadrants to regions though out Mexico.
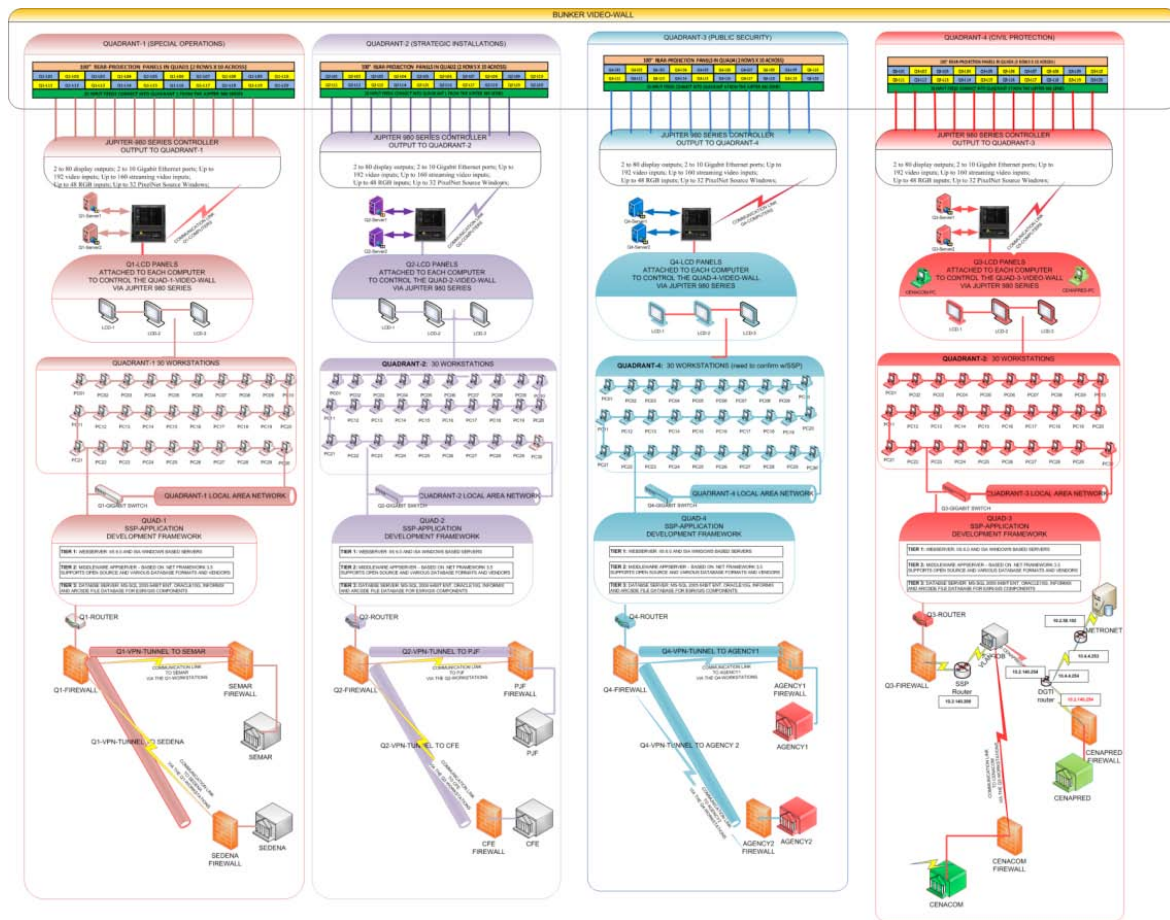
Figure 6: Plataforma Mexico Network

Challenge 3: Improved response between local responders and federal police

SSP must work with several emergency response agencies, including civil protection, strategic installations, local police, and the military. In order for cooperation and coordination to be effective, SSP must solve the institutional differences and data responsibilities. For example, Civil Protection had issues about working within the Bunker facilities and sharing local incident data that would not necessarily be needed at the federal level. The challenge was how to build trust and cooperation within the key agencies.

Solution 3: Distributed regional system

Instead of dictating to external agencies that they should supply personnel and send all their data to the Bunker, SSP decided to let each agency decide what data to send and how often. SSP went a step further and enabled those agencies with a distributed crisis information management system (CIMS) that replaced many of the old manual processes. Each Civil Protection and Strategic Installation agencies were to get new CIMS that interfaced directly with the Bunker system. Figure 7 below depicts a simplified distributed architecture for sharing data from multiple CIMS.
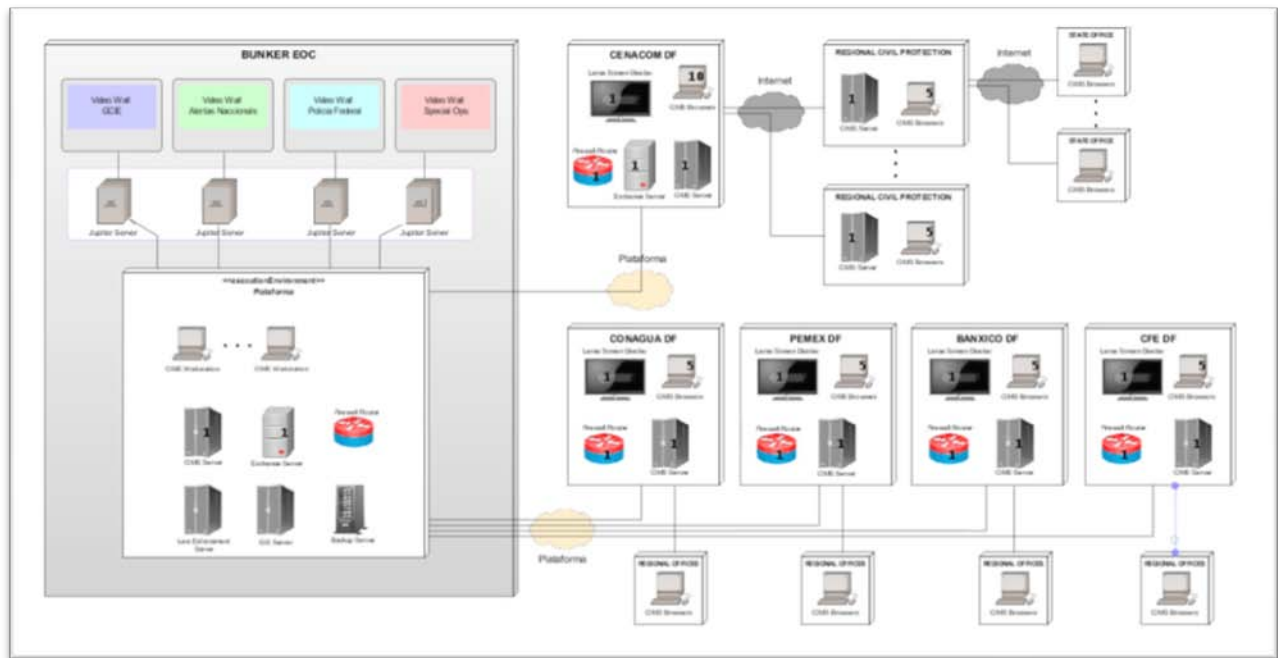
Figure 7: Distributed Architecture

The Bunker (shown in the figure as a grey box) sends and receives data from Civil Protection (CENACOM) and Strategic Installations (Conagua, PEMEX, Banxico, and CFE), upper right and lower right diagram respectively. Note that CENACOM has ten regional centers that also receive a new CIMS.

This distributed CIMS architecture now allows incident sharing with the Bunker without extra effort by outside agencies. In fact, Civil Protection and Strategic Installations can share more easily and accurately because of the information is streamlined within the CIMS. Each CIMS manager decides what and where the incident data should go, and sends it with only a click of the mouse. All CIMS messages and status boards are standard format and consistent throughout the network, and therefore, does not require agency personnel relocate to the Bunker. The CIMS upgrades establish a common platform from which to communication amongst agencies and facilitate trust in sharing data.

Challenge 4: Scalable information sharing

The SSP connects and shares information with many agencies and strategic facilities through Mexico. These communication connections need a canonical standard to provide for scalability and maintainability. Without a standard, inter-agency communication quickly evolves into non-scalable and unmanageable point-to-point mapping, as shown in the nearby Figure 8.
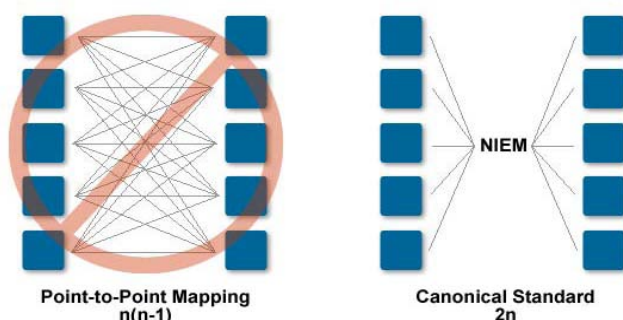

The Bunker's primary system is the SSP Law Enforcement System (Plataforma). It communicates with the Civil Protection and Strategic Installations Crisis Information Management System (CIMS). A messaging standard was needed for the Plataforma to

Figure 8: Scalable Information Sharing

11

CIMS interface, and all other agency interfaces. Often, information about national emergency incidents comes into the Bunker through Civil Protection and Strategic Installations agencies. Other times, information can come from immigration and border countries. The challenge was to standardize messages flowing into and out of the Bunker so that additional information sources could more easily integrate into the Plataforma network.

Solution 4: Standard NIMS messages for crisis management

SSP chose the NIEM 2.1 Emergency Managment XML standard as the best solution for the data exchange between the Bunker and other agencies. Initially, the design focuses on the information exchange between the SSP Law Enforcement System and the distributed Crisis Information Management (CIMS) software. As more agencies are included, such as judicial (PGR) and immigration (INM), the exchange will follow the established NIEM standard. A simplified example of the NIEM XML used in the Bunker is listed below:

em:AlertAffectedLocationAugmentation – locaton related information

em:AlertEventDetailsAudienceDescriptionText

em:AlertEventDetailsCategoryCode

em:AlertEventDetailsCertaintyCode

em:AlertEventDetailsDescriptionText

em:AlertEventDetailsHeadlineText   **Alert Details related informaton**

em:AlertEventDetailsInstructionsDescriptionText

em:AlertEventDetailsOnsetDateTime

em:AlertEventDetailsSystemRecordID

em:AlertEventDetailsSeverityCode

em:AlertReference

nc:IncidentReference

em:AlertEffectiveDateTime   **Date and Time**

em:AlertExpirationDateTime

em:AlertHeadlineText

em:AlertInstructionsDescriptionText

em:AlertHandlingIdentification   **Alert handling and instruction details**

em:AlertHandlingText

em:AlertReasonText

em:ContactName

em:ContactRoleCode

nc:IncidentReference

em:NotificationStatusCode

 (Note: the "em" namespace indicates the NIEM 2.1 Emergency Management XML Namespace and the "nc" is the NIEM core markup which is the superset of all NIEM domain markups.)

10. Conclusions

The SSP control center is one of the most sophisicated command and control centers for emergency response in the world. It extends beyond its parameter walls to link key agencies into an effective law enforcement and crisis information center for management of national emergencies in Mexico. The challenges and determination to build a dependable and useful facility has proven worthwhile, and will continue to serve the public safety during the most extreme emergencies. Despite several challenges, the control center's IT system designed and implemented as part of this US funded project, will enable Government of Mexico to enhance its institutional capabilities in responding to disasters of any magnitude. The control center design, introduces for the first time, the "state-of-the-art" and industry's "best practices" in effectively planning for, responding to and recovering from major natural and man-made disasters in Mexico and Latin America.

Mexico's National Command and Control Center Challenges and Successes
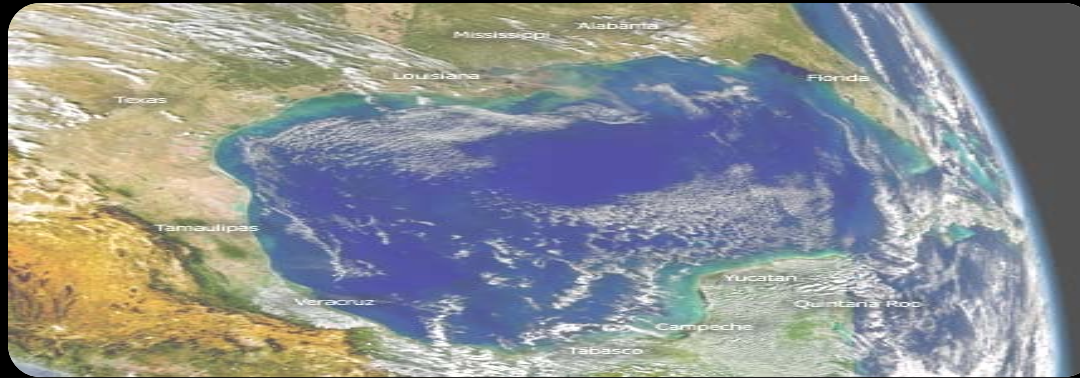
SAI Team (USA, Mexico)

June 22, 2011

Mr. Venu Sarakki P.E

Agenda

- Introduction
- Background
- Project Particulars
- Challenges
- Conclusions

Introduction

- Acknowledgement of paper's contributors
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  - Greg Mosley (Presenter SAI)
  - Fred Schellenburg (Narcotics Affairs Section USG)
  - Alex Bonino (Narcotics Affairs Section USG)
  - Franciso Nimbro (Director SSP GOM)
  - Andres Parales Pimental (Bunker Manager SSP GOM)

National Command & Control Center

BUNKER

Entrance

Project Particulars

SSP Bunker - Operations

- Operates 24X7
- National nerve center for law enforcement and civilian emergencies
- Co-location with stakeholder representatives
- Plataforma Mexico is the operational core
- Uses over 60 software applications
- Has a database of nearly 300 million records
- Reaches out to 7 Central American countries
- Communicates with state and federal governments

Mexico Regions and State Locations
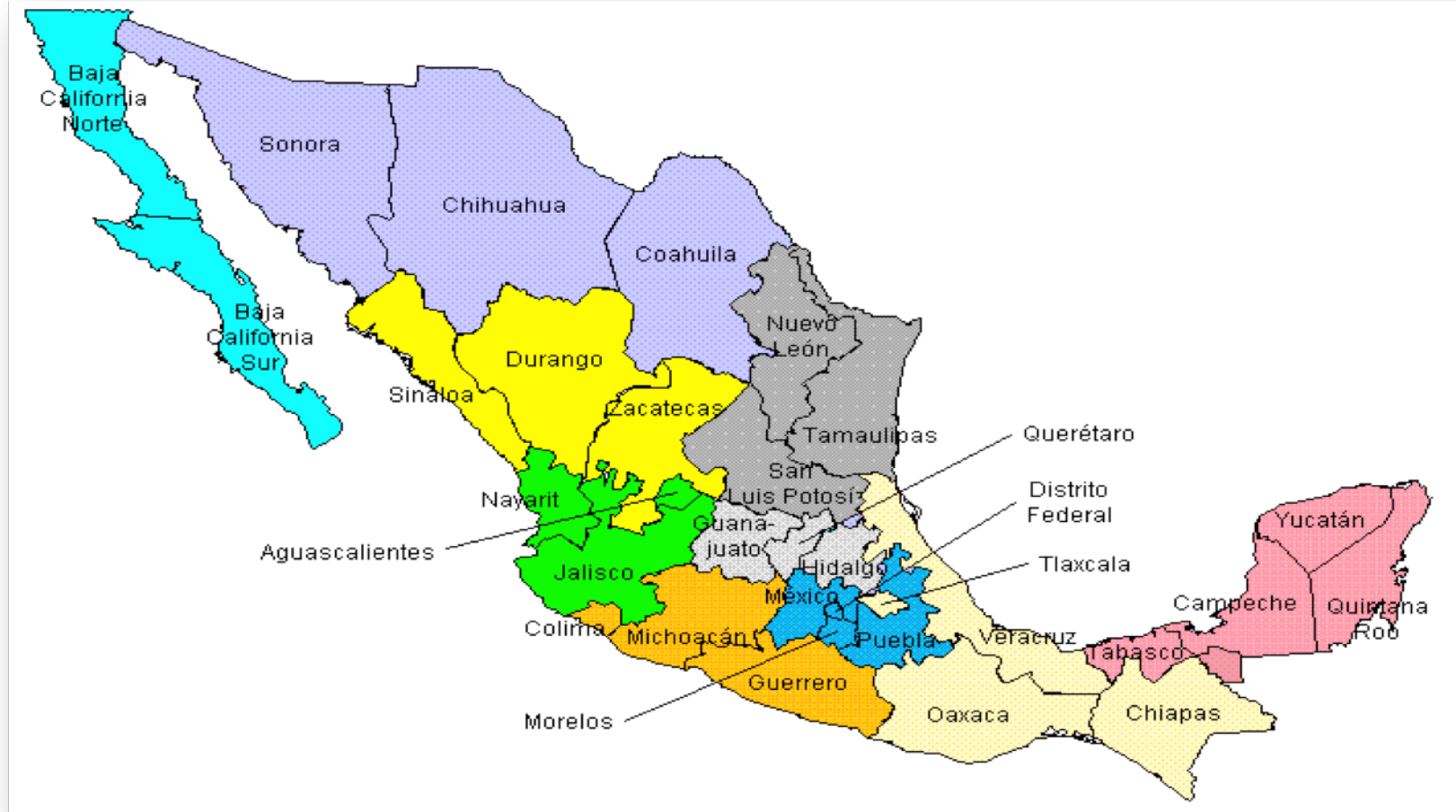
Stakeholders

- ## Direct
  - Federal Police (SSP)
  - Army & Navy (Sedena, Semar)
  - Civil Protection (Protection Civil)
  - Strategic Facilities (PEMEX, CFE, Conagua, Banxico)
- ## Indirect
  - Local Police
  - Local Emergency Responders
  - Immigration (INM), CIA (Cisen), Judicial (PGR)
  - Public

Challenges

Four Challenges

1. Creating Common Operational Picture (COP)

2. Secure real-time communications

3. Improved response between local responders and federal police

4. Scalable information sharing

Common Operating Picture (COP) CHALLENGE 1

- Bunker has 4 independent quadrants

- Two unconnected management systems

- No common reporting format

- No common tagging of incoming data

- Historical data unmanageable

- Poor coordination of emergency resources

Define: Common Operating Picture

Goals:
- Situational awareness of actual conditions
- Dynamic accurate update of field conditions
- Real-time analysis of conditions
- Integration of local response plans with central (Bunker)
- Empowerment of decision makers

SAI

Where does COP fit?

Integrate and
analyze data
(Ist row)

Actionable
intelligence and
decision making
(2nd row domain
experts)

Disseminate
situational
awareness
(3rd row Policy
level)

Physical Layout

Quadrant 3 – Public Security
(SEDENA, SEMAR, CISEN. PGR)

Quadrant 4 – Civil Protection
(CENACOM, CENAPRED)

Central Conference Room

Quadrant 1 – Special Operations
(SSP, PFP)

Quadrant 2 – Strategic Installations
(CONAGUA, PEMEX, LYF, CFE, Banxio)

SAI
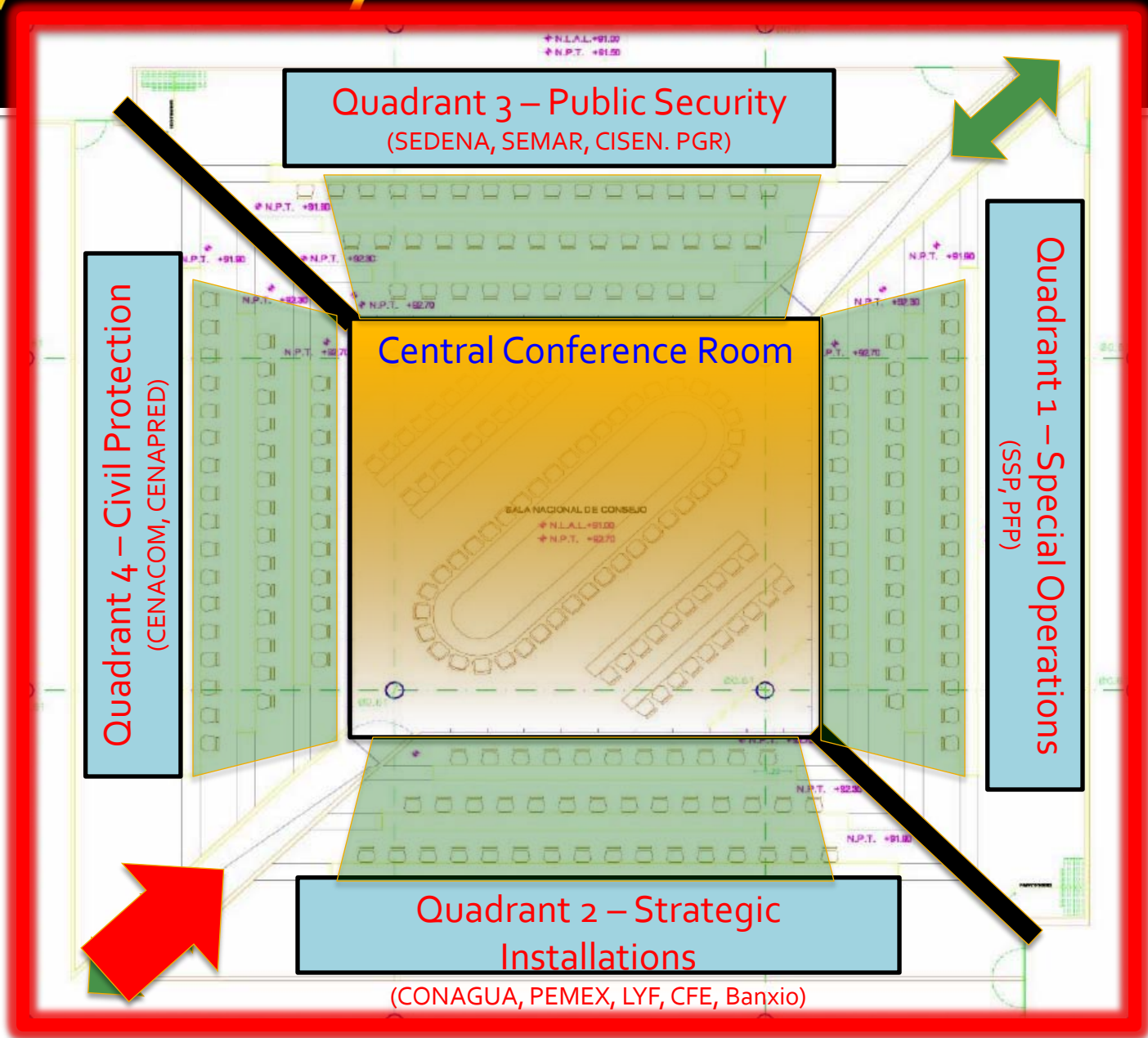
Bunker – 2 of 4 Quadrants

Center Conference Room

Video Wall

Common Operating Picture SOLUTION

- Unite the four quadrants and others
  - Common Crisis Information Management System (CIMS)
  - Interface the CIMS with the Law Enforcement System (Plataforma)
  - Link the video walls with a common incident area
  - Unify the incident data with an universal identifier
  - Use common incident reference scheme

Link Law Enforcement with Crisis Information Management

Plataforma and CIMS

Crisis Management

- Civil Protection / National Alerts
- Strategic Installations / GCIE
  - Automates business flow (CIMS)
  - Avoid double entries
  - Enhances situational awareness
    - Real-time updates
    - Organized intelligence
    - Verified data
  - Clearly defined reporting hierarchy
    - Users, groups, roles, positions

Oficina Estatal	Oficina Regional	(CENACOM) Oficina Central

Inicio de Incidente

inicio

Detectar incidente

usuario / contraseña

Registro a CIMS

buen acceso

Enviar mensaje de alerta

alerta

evaluar alerta

añadir

identidad de incidente

Seleccionar incidente

Incidente añadido al tablero de incidentes

publicar

Tablero actualizado de...

actualizar

proceso

Actualizar incidente

actualizaciones

Evento añadido a eventos significantes

publicar

Actualización en tablero de eventos remotos...

evento

Ver plan de respuesta

situación

Reporte de incidente remoto actualizado

Evaluar las necesidades del incidente

aprobación

aceptada

publicar

Reporte de incidente aprobado

iniciar

Revisar reporte de recuperación

Búnker

Alertas Nacionales	SSP Plataforma

Evaluar las Necesidades del Incidente

Búnker u Oficina Central

Operador Técnico Analista	Supervisor

Incidente Remoto   Eventos significantes

tablero   tablero

Acumular inteligencia

añadir

Datos de Incidente

recaudar

Tablero de eventos significantes

Posición en el tablero

Estatus de recursos

Tweets, correo electrónico, comunicación en vivo

Incidente añadido al tablero de incidentes

tablero

incidentes

remoto

Publicar incidente

inteligencia

recaudar

datos

tablero

de Incidente

stro

Crear reporte de incidente

datos

datos

Revisar reporte de incidente

evaluación

Solicitud de más recursos

sí

Escasez?

no

solicitud

Recursos adecuados

Necesidades del recurso

reporte

Reporte de incidente

proceso

WebEOC 7.2

Mexico SSP as * SSP Tech Operator   Log Off

Derrame de petróleo de BP

Boards
Eventos significativos
Comunicados de prensa
Misión/Tarea
Refugios
Menus
Formularios de ICS/FEM
Menú de EOC »
Menú de presentación »
Registros de actividades
Tools
Chat
Checklists
Mensajes - Messages
Plugins
File Library
MapTac
Links
Centro Nacional de Prev
Secretaria De Gobernan
Secretaría de Seguridad

Eventos significativos

SSP — SECRETARÍA DE SEGURIDAD PÚBLICA

- Gazprom recorta a partir de hoy los suministros de gas a Bielorrusia

Page 4 of 20

Derrame de petróleo de BP

Entradas eliminadas   Entrada nueva

Derrame de sustancias químicas	El derrame de petróleo de BP ahora es línea de la playa mexicana del afecto en x, xx, y xxx
Fecha/Hora: 06/16/2010 15:51:44	Jefe de la sección de operaciones - Sarakki a 15:51:14 el 16/06/2010
Puesto: Jefe de la sección de operaciones	
Nombre: Sarakki	
Registro: 6	

Dirección/Ubicación: N.º DE CAD
Adjunto: Editar/Actualizar/Eliminar

Esta información no debe divulgarse públicamente y es sólo para usuarios de WebEOC autorizados.

Materiales peligrosos	The BP Oil Spill is now affection Mexican shoreline at x, xx, and xxx
Fecha/Hora: 06/15/2010 12:53:05	Jefe de la sección de operaciones - Administrador de WebEOC a 12:54:59 el 6/15/2010
Puesto: Jefe de la sección de operaciones	
Nombre: Administrador de WebEOC	
Registro: 3	

Dirección/Ubicación: N.º DE CAD
Adjunto: Editar/Actualizar/Eliminar

Esta información no debe divulgarse públicamente y es sólo para usuarios de WebEOC autorizados.

<<<<   <<   Page 1 of 1   □ Disable Refresh   >>

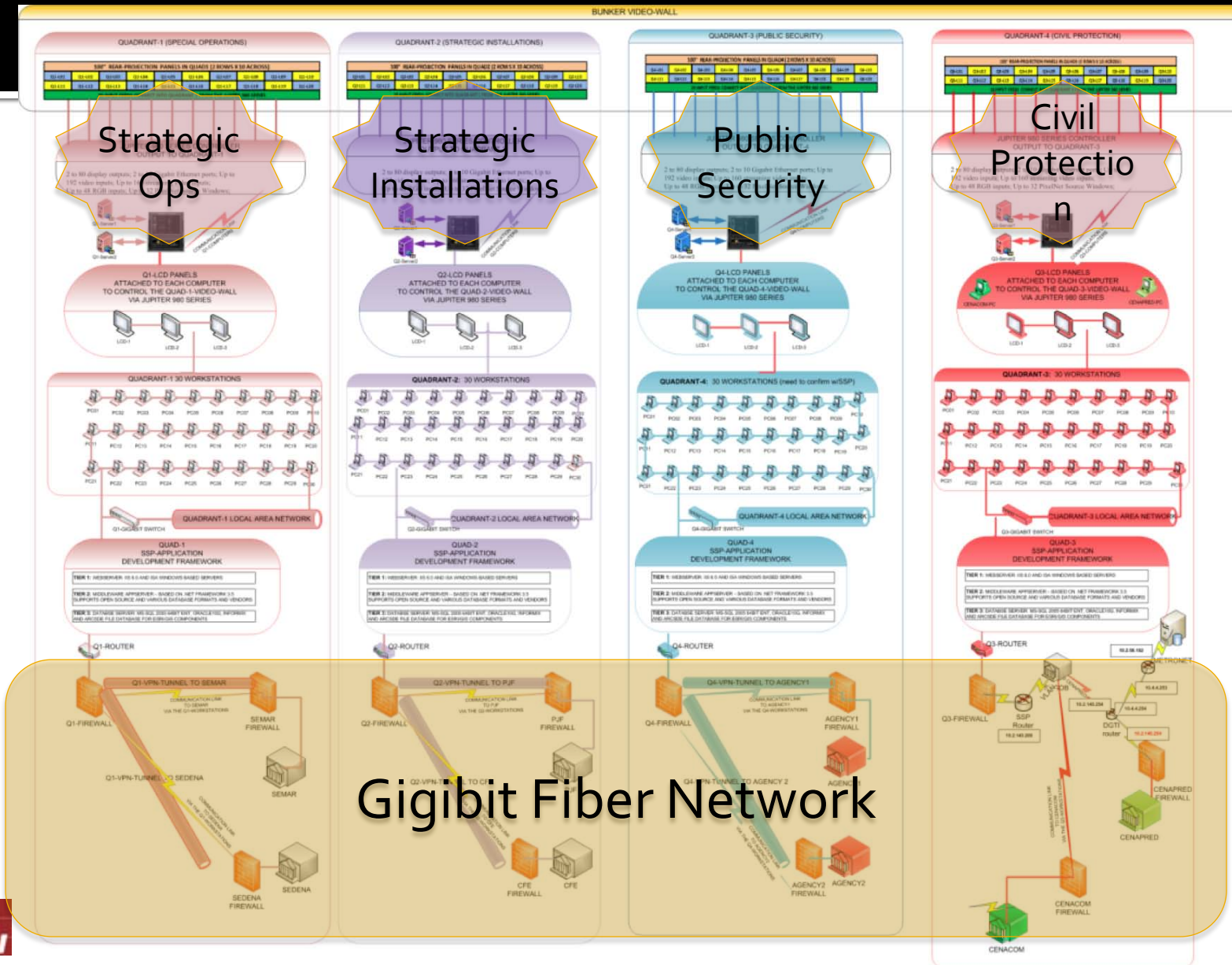# Secure Real-time Communications CHALLENGE 2

- **Sensitive data flows between agencies**
  - Law enforcement & military data
- **Plataforma network covers the nation**
  - National crisis can occur anywhere
- **Addition connections to US and neighbors**
  - Information sharing to catch bad guys
- **Inter-agency communications reliability**
  - Telecommunications companies sometimes dicey
- **Broadband needed at key facilities**
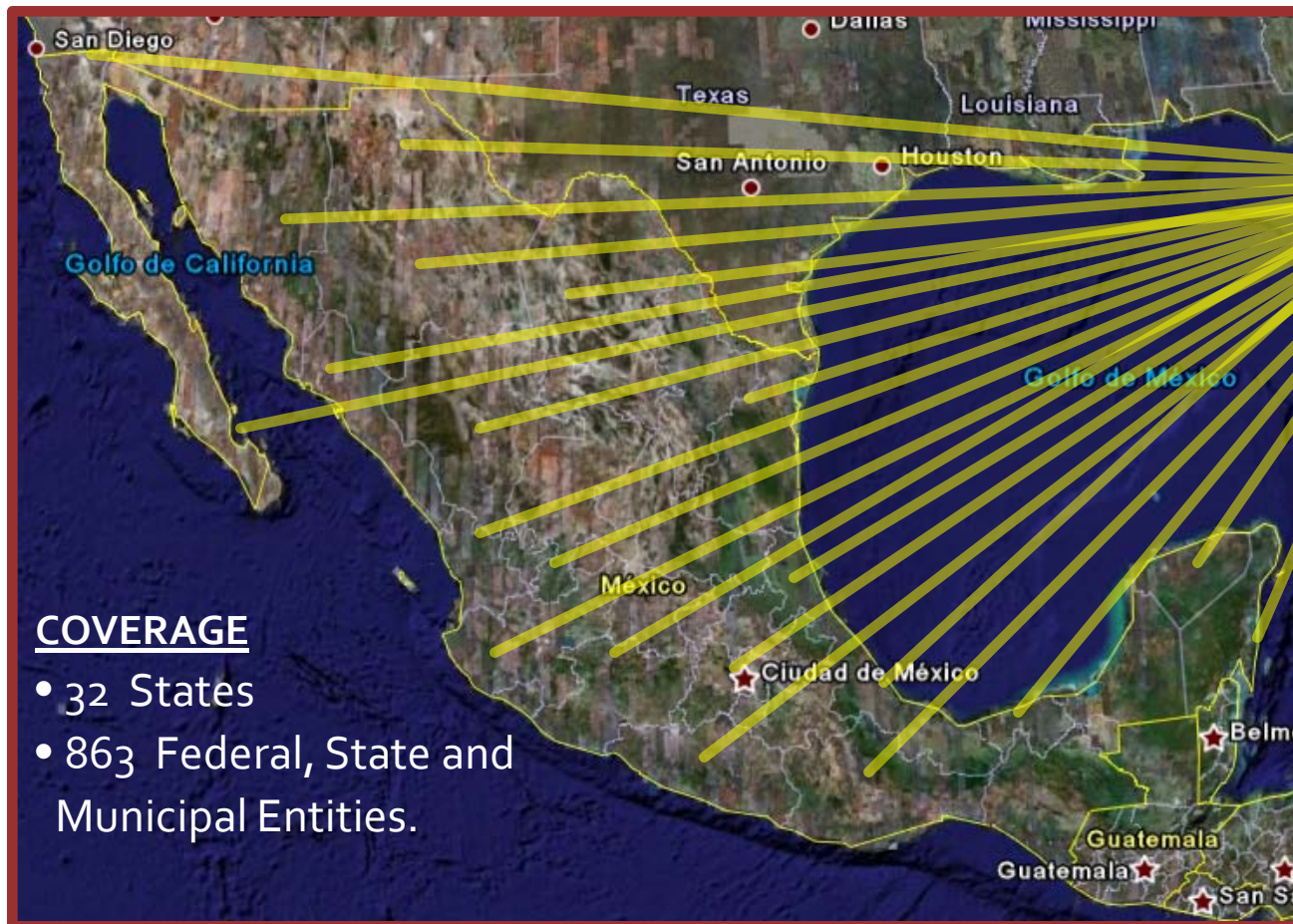 - Video, audio, video conference, cartography, news, security
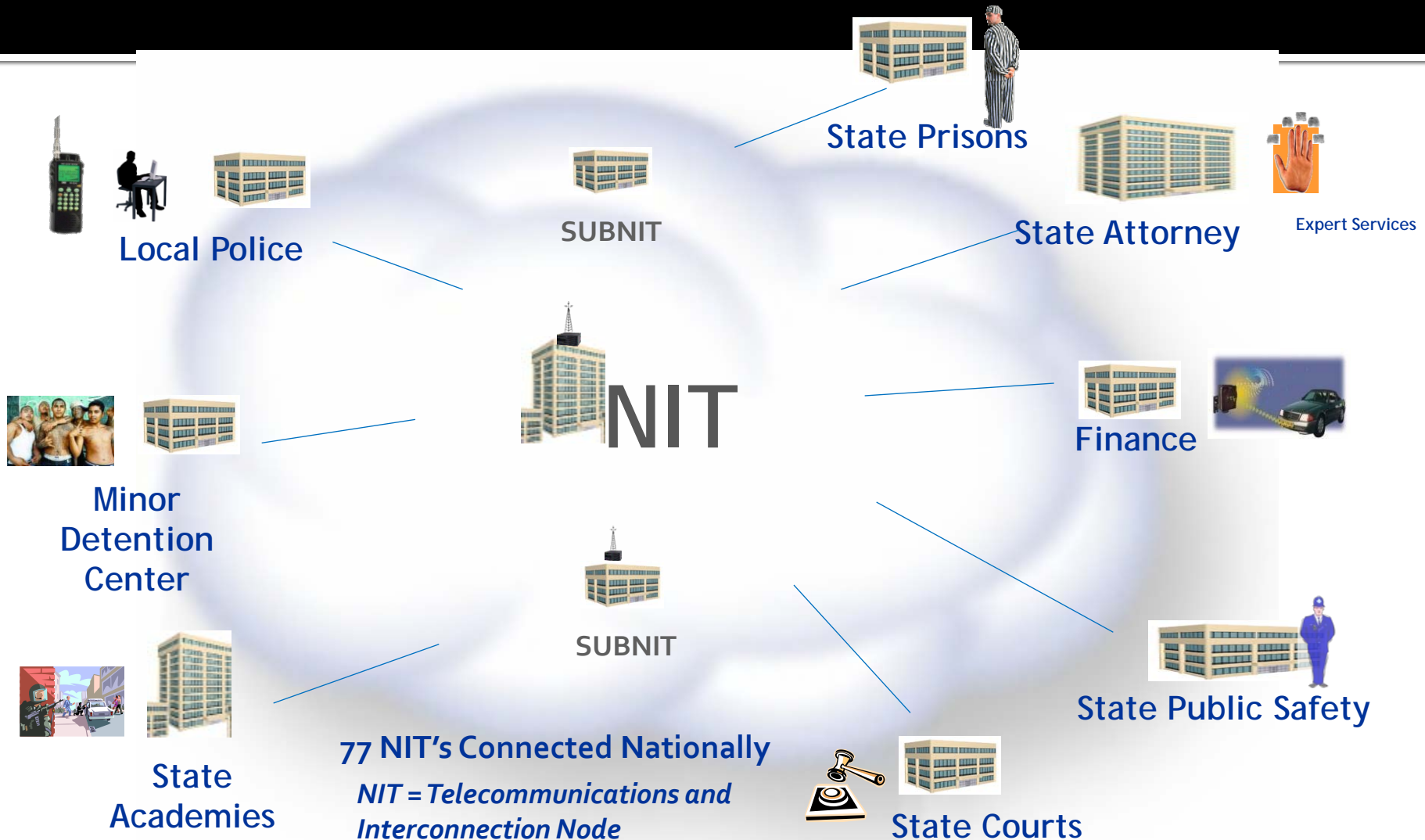
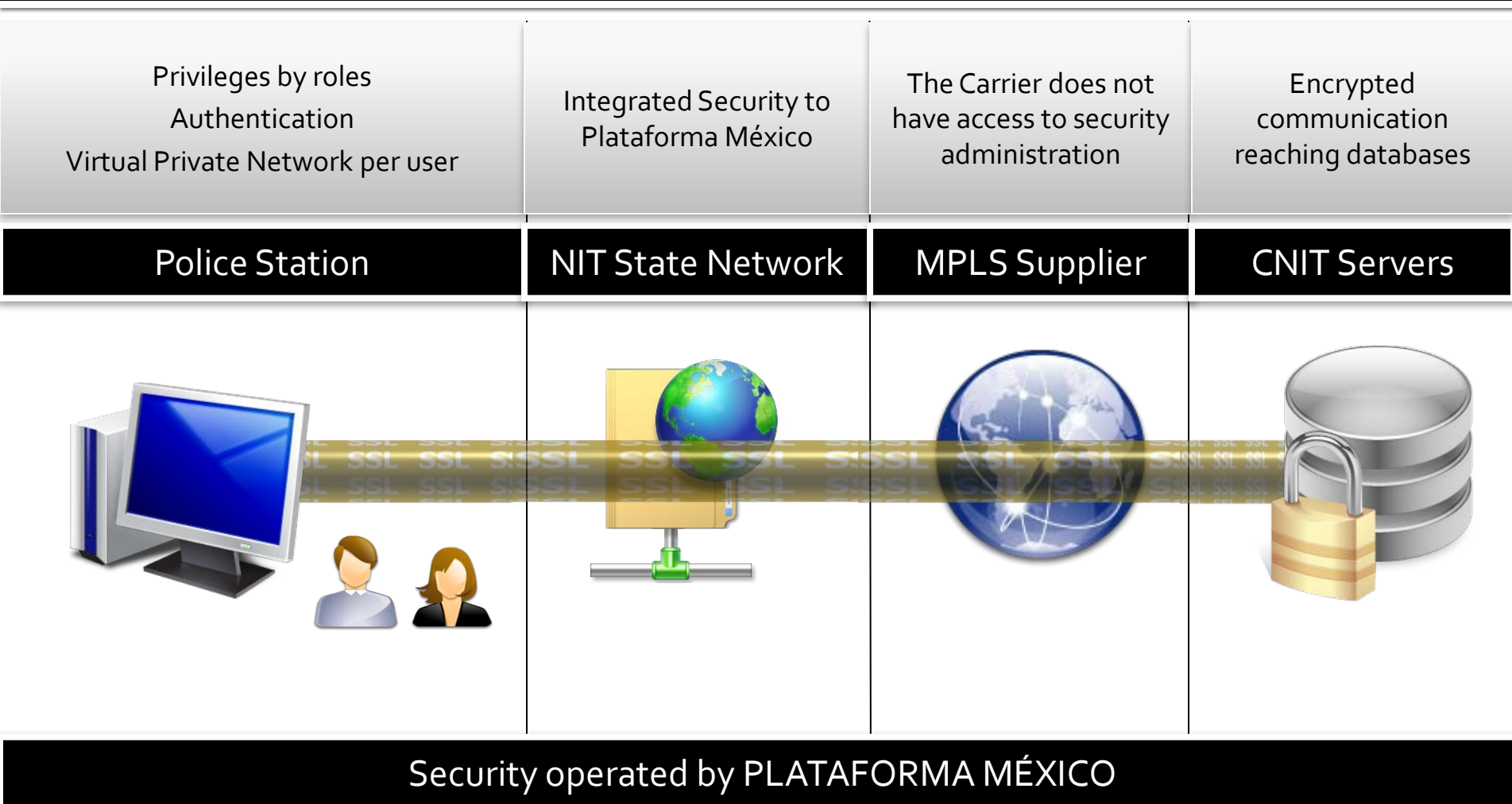# Plataforma Mexico Central

Plataforma Statewide Network

Plataforma
México

COVERAGE
- 32 States
- 863 Federal, State and Municipal Entities.

Wide Area Network

State Prisons

State Attorney

Expert Services

Local Police

SUBNIT

NIT

Minor Detention Center

Finance

SUBNIT

State Public Safety

77 NIT's Connected Nationally

NIT = Telecommunications and Interconnection Node

State Academies

State Courts

Security on the Network

Privileges by roles Authentication Virtual Private Network per user	Integrated Security to Plataforma México	The Carrier does not have access to security administration	Encrypted communication reaching databases
Police Station	NIT State Network	MPLS Supplier	CNIT Servers

Security operated by PLATAFORMA MÉXICO

# Secure Real-time Communications SOLUTION

- Agencies with Mexico City are hubs
  - Connected by private gigabit fiber network
  - Private is more secure and reliable

- Use of public network between NITs
  - Critical links are private fiber
  - Other links use encryption and VPN

Improve Response with Locals CHALLENGE 3

- ## Policy problems
  - Key agencies were hesitant to share local data
  - Didn't want to relocate personnel to Bunker
  - Civil Protection and GCIE procedures sometimes conflicted with SSP
- ## Technical problem
  - Local manual processes greatly slowed response time and data accuracy
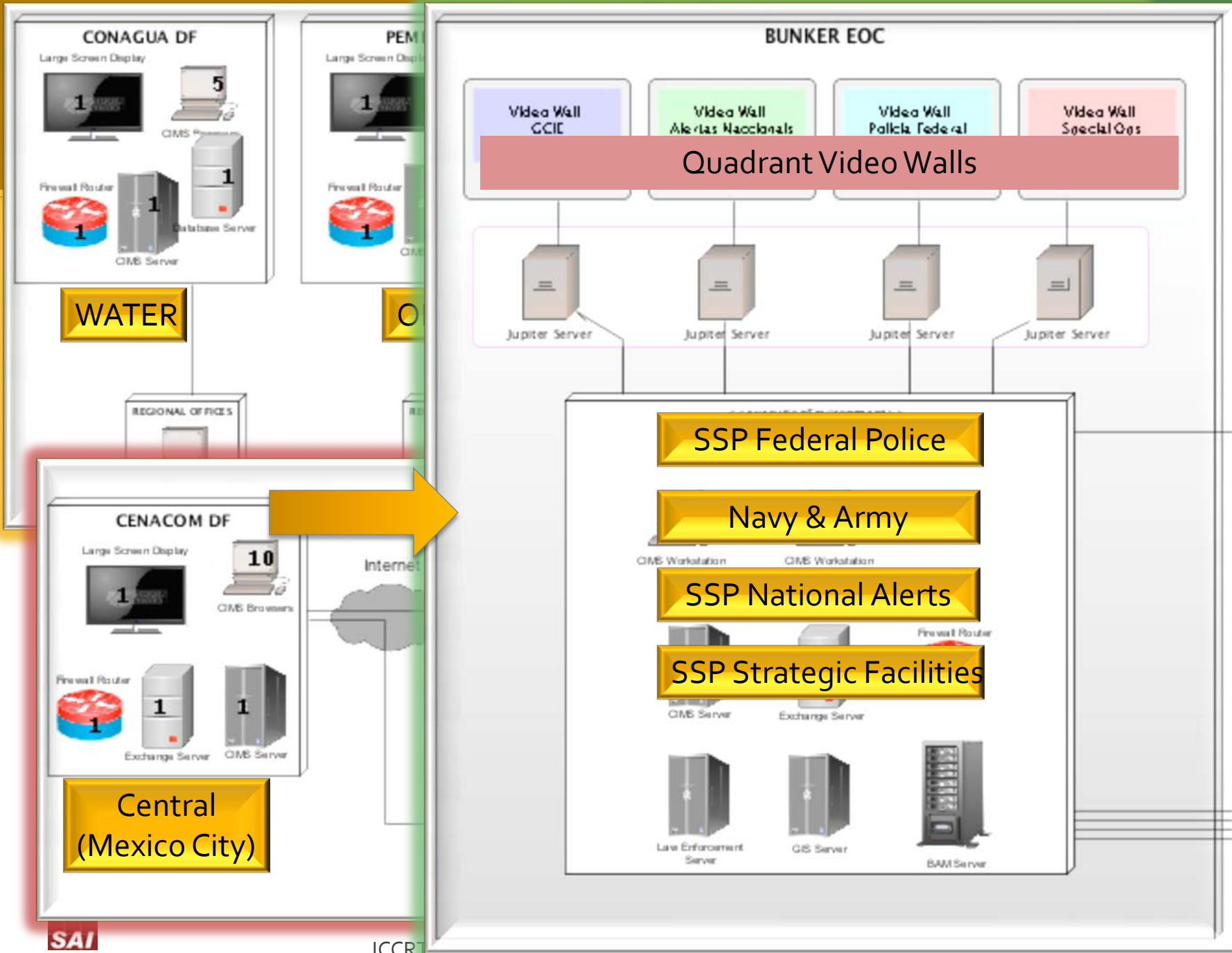
Improve Response with Locals SOLUTION

- Distribute the system
  - Provide key agencies with common CIMS solution
  - Provide the hardware and software
  - Allow agencies to tailor the CIMS for their needs
  - Allow agencies to control information filters
  - Provide standard methods of information exchange
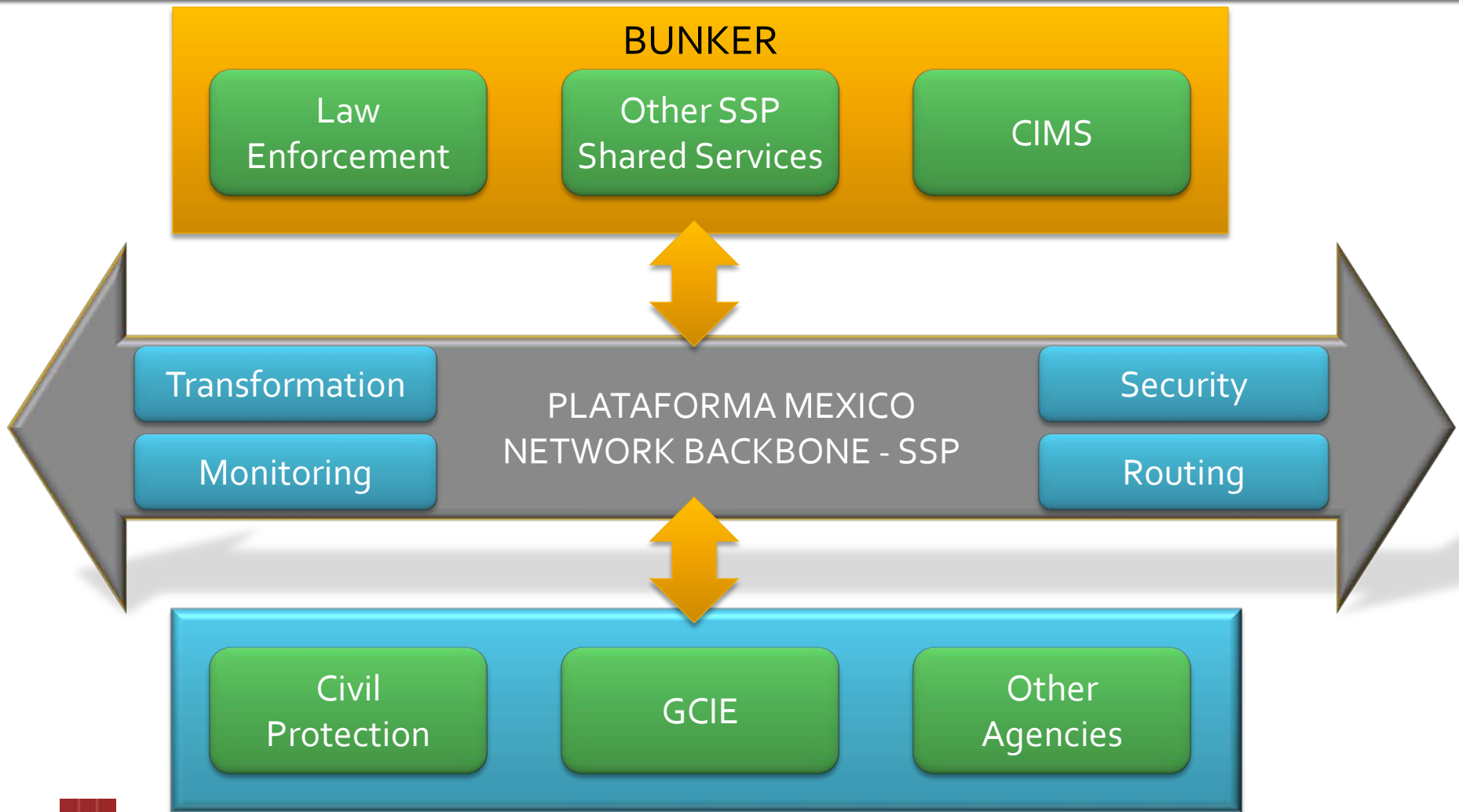
Scalable Information Sharing CHALLENGE 4

- Connections difficult to scale and maintain
  - Many customized inter-agency interfaces
  - Most use point-to-point communications
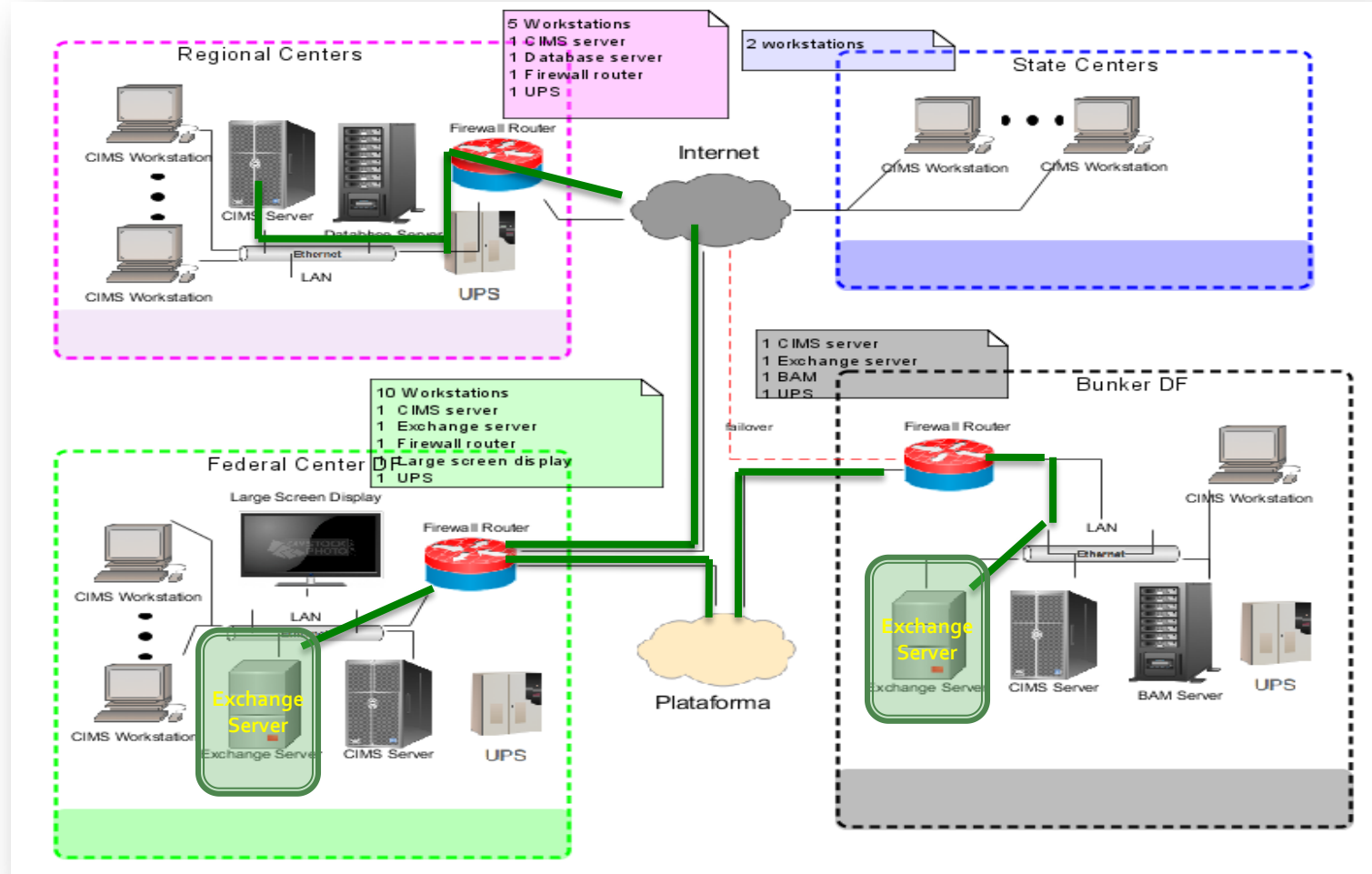 - No common message format

Collaboration = Many Interfaces

State Police

Federal Police

Local Police

Emergency Services

Attorneys

Citizenship

International Agencies

Federal Entities

Courts

SAI

Enterprise Service Bus Solution

Information Exchange Server

Scalable Information Sharing SOLUTION

- **Standardize the system-to-system interfaces**
  - Enterprise Service Bus
  - Web services
- **Eliminate point-to-point**
  - Message broker
  - Information Exchange Server
- **Standardize the message format**
  - National Information Exchange Model (NIEM)
  - Emergency Data Exchange Language (EDXL)

Conclusions

- The Bunker design was initially focused at Law Enforcement

- Design expanded to overcome some major institutional challenges

- That design integrated CIMS internally and nationwide – both system & network

- The result is a effective and world-class emergency operations center

Questions

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